



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,238	12/08/2003	Naiyong Jing	59445US002	2480
32692	7590	04/06/2005		
3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			EXAMINER MCCLENDON, SANZA L	
			ART UNIT	PAPER NUMBER
			1711	

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/730,238

Applicant(s)

JING ET AL.

Examiner

Sanza L. McClendon

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15-18, 21-39, 41-44 and 47-52 is/are rejected.
- 7) ☒ Claim(s) 14, 19, 20, 40, 45 and 46 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/04 and 1-2/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: On page 6, lines 14-15, there is a missing US Patent application number.

Appropriate correction is required.

### *Double Patenting*

2. Claims 1-2, 6, 9-13, 15-18, 21-24, 26-29, 31-32, 35, 38-39, 41-44, 47-50 and 52 are directed to an invention not patentably distinct from claims 1-3, 5-6, 9, 12, 18-22, 24-35, 28, 31 and 37-38 of commonly assigned 10/712,361. Specifically, The difference appears to be in the instantly claimed invention crosslinking said polymer is by exposure to electromagnetic radiation, while 10/712,361 teaches using a specific form of electromagnetic radiation, i.e., electron beam radiation. The co-pending applications are deemed to overlap in scope since electron beam radiation is a form of the broad class of electromagnetic radiation. Additionally, the examiner deems that the general disclosure and teachings of 10/712,361 renders the invention of the instant claims obvious to an artisan of ordinary skill in the art.

3. Claims 1-6, 8-13, 15-18, 21-32, 34-39, 41-44 and 47-52 are directed to an invention not patentably distinct from claims 1-6, 10-11, 15-16, 20-28, 32-33, 37-38, and 42-44 of commonly assigned 10/733,211. Specifically, the differences between the methods appear to be the second pendent groups found in 10/733,211. However, the instantly claimed invention does not positively exclude second pendent groups selected from the groups found in claim 1 of 10/733,211. In addition, the general disclosure and teachings found in 10/733,211 would render the instantly claimed method obvious to an artisan of ordinary skill in the art.

4. Claims 1-2, 6, 8-10, 12-13, 15-18, 21-24, 26-28, 32, 34-36, 38-39, 41-44, 47-50 and 52 are directed to an invention not patentably distinct from claims 1-3, 7-9, 13-14, 18-19, 23-24, 36-38, 42-43, 47-48, 52-53, and 57-58 of commonly assigned 10/712,590 in view of Asawa et al (JP 54-052690). Specifically, The primary difference between methods is 1) the teaching of a second pendent group and 2) the radiation used for crosslinking found in said co-pending application. However, the examiner deems the instantly claimed method included the use of electron beam radiation in the broad disclosure of electromagnetic radiation—see instant claim 2. Similar polymers having pendent ion exchange functional groups with secondary halogen pendent groups are known in the prior art,

Art Unit: 1711

such as JP 54-052690 to Asawa et al. Asawa et al teaches fluorine-containing cation exchange membranes with improves mechanical properties by crosslinking a copolymer of an iodine-containing vinyl ether, a fluorinated olefin and a fluorine containing monomer having an ion exchange groups or functional groups convertible to ion exchange groups. Said polymer is similar to those taught in the instant application. Therefore, it would have been obvious for a skilled artisan to obtain a polymer as found in the instant application having secondary pendent groups, as well as, ion exchange functional groups as taught in the prior art. The motivation would have been a reasonable expectation of obtaining an ion exchange membrane with improved mechanical properties, such as found in JP 54/052690.

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1-2, 6, 9-13, 15-18, 21-24, 26-29, 31-32, 35, 38-39, 41-44, 47-50 and 52 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 5-6, 9, 12, 18-22, 24-35, 28, 31 and 37-38 of copending Application No. 10/712,361. Although the conflicting claims are not identical, they are not patentably distinct from each other because appear to overlap in scope. The difference appears to be in the instantly claimed invention crosslinking said polymer is by exposure to electromagnetic radiation, while 10/712,361 teaches using a specific form of electromagnetic radiation, i.e., electron beam radiation. The co-pending applications are deemed to overlap in scope since electron beam radiation is a form of the broad class of electromagnetic radiation. Additionally, the examiner deems

Art Unit: 1711

that the general disclosure and teachings of 10/712,361 renders the invention of the instant claims obvious to an artisan of ordinary skill in the art.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

7. Claims 1-6, 8-13, 15-18, 21-32, 34-39, 41-44 and 47-52 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6, 10-11, 15-16, 20-28, 32-33, 37-38, and 42-44 of copending Application No. 10/733,211 in view of Asawa et al (JP 54-052690). Although the conflicting claims are not identical, they are not patentably distinct from each other because they appear to overlap in scope. The differences between the methods appear to be the second pendent groups found in 10/733,211. However, the instantly claimed invention does not positively exclude second pendent groups selected from the groups found in claim 1 of 10/733,211. And, in addition, similar polymers having pendent ion exchange functional groups with secondary halogen pendent groups are known in the prior art, such as JP 54-052690 to Asawa et al. Asawa et al teaches fluorine-containing cation exchange membranes with improves mechanical properties by crosslinking a copolymer of an iodine-containing vinyl ether, a fluorinated olefin and a fluorine containing monomer having an ion exchange groups or functional groups convertible to ion exchange groups. Said polymer is similar to those taught in the instant application. Therefore, it would have been obvious for a skilled artisan to obtain a polymer as found in the instant application having secondary pendent groups, as well as, ion exchange functional groups as taught in the prior art. The motivation would have been a reasonable expectation of obtaining an ion exchange membrane with improved mechanical properties, such as found in JP 54/052690. In addition, the general disclosure and teachings found in the combination of 10/733,211 and JP 54-052690 would render the instantly claimed method obvious to an artisan of ordinary skill in the art.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

8. Claims 1-2, 6, 8-10, 12-13, 15-18, 21-24, 26-28, 32, 34-36, 38-39, 41-44, 47-50 and 52 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 7-9, 13-14, 18-19, 23-24, 36-38, 42-43, 47-48, 52-53, and 57-58 of copending Application No. 10/712,590 in view of Asawa et al (JP 54-052690). Although the conflicting claims are not identical, they are not patentably distinct from each other because they appear to overlap in scope. The primary difference between methods is 1) the teaching of a second

Art Unit: 1711

pendent group and 2) the radiation used for crosslinking found in said co-pending application. However, the examiner deems the instantly claimed method included the use of electron beam radiation in the broad disclosure of electromagnetic radiation—see instant claim 2.

The instantly claimed polymer does not positively exclude secondary pendent groups including those found in the grouping of 10/712,590. However, similar polymers having pendent ion exchange functional groups with secondary halogen pendent groups are known in the prior art, such as JP 54-052690 to Asawa et al. Asawa et al teaches fluorine-containing cation exchange membranes with improves mechanical properties by crosslinking a copolymer of an iodine-containing vinyl ether, a fluorinated olefin and a fluorine containing monomer having an ion exchange groups or functional groups convertible to ion exchange groups. Said polymer is similar to those taught in the instant application. Therefore, it would have been obvious for a skilled artisan to obtain a polymer as found in the instant application having secondary pendent groups, as well as, ion exchange functional groups as taught in the prior art. The motivation would have been a reasonable expectation of obtaining an ion exchange membrane with improved mechanical properties, such as found in JP 54/052690. In addition, the general disclosure and teachings found in the combination of 10/712,590 and JP 54-052690 would render the instantly claimed method obvious to an artisan of ordinary skill in the art.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-2, 6, 9-13, 15-18, 21-24, 26-29, 31-32, 35, 38-39, 41-44, 47-50 and 52 are provisionally rejected under 35 U.S.C. 103(a) as being obvious over copending Application No.

Art Unit: 1711

10/712,361 which has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the copending application, it would constitute prior art under 35 U.S.C. 102(e) if published or patented. This provisional rejection under 35 U.S.C. 103(a) is based upon a presumption of future publication or patenting of the conflicting application. Co-pending application 10/712,361 teaches methods of making crosslinked polymers comprising the steps as outlined in claim 1. The polymer described in step (a) appears to read on the instant step (a) polymer when Cl is chosen. Said polymer is crosslinked by exposure to electron beam radiation. This appears to read on the instant claims since the instant claims are crosslinked by exposure to electromagnetic radiation. While the instant claims do not expressly teach using electron beam radiation as the form of electromagnetic radiation, the examiner deems that it would have been obvious for an artisan of ordinary skill in the art at the time of the invention to use electron beam radiation to crosslink the claimed polymer, as suggested by 10/712,361. The motivation would have been a reasonable expectation of obtaining an adequately crosslinked polymer without residual photoinitiator/synergist moieties within the final product in the absence of evidence to the contrary and/or unexpected results. Additionally, the examiner deems that the general disclosure and teachings of 10/712,361 renders the invention of the instant claims obvious to an artisan of ordinary skill in the art.

This provisional rejection might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the copending application was derived from the inventor of this application and is thus not the invention "by another," or by a showing of a date of invention for the instant application prior to the effective U.S. filing date of the copending application under 37 CFR 1.131. For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

11. Claims 1-13, 15-18, 21-39, 41-44 and 47-52 are provisionally rejected under 35 U.S.C. 103(a) as being obvious over copending Application No. 10/712,590 which has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the copending application, it would constitute prior art under 35 U.S.C. 102(e) if published or patented. This provisional rejection under 35 U.S.C. 103(a) is based upon a presumption of future publication or patenting of the conflicting application. Co-pending application 10/712,590 teaches methods of making crosslinked polymers comprising the steps as outlined in claim 1. The polymer described in step (a) appears to read on the instant step (a) polymer when Cl is chosen. Said polymer being crosslinked by exposure to electron beam radiation. While the instantly claimed invention does not positively exclude second

Art Unit: 1711

pendent groups selected from the groups found in claim 1 of 10/712,590, similar polymers having pendent ion exchange functional groups with secondary halogen pendent groups are known in the prior art, such as JP 54-052690 to Asawa et al. Asawa et al teaches fluorine-containing cation exchange membranes with improves mechanical properties by crosslinking a copolymer of an iodine-containing vinyl ether, a fluorinated olefin and a fluorine containing monomer having an ion exchange groups or functional groups convertible to ion exchange groups. Said polymer is similar to those taught in the instant application. Therefore, it would have been obvious for a skilled artisan to obtain/prepare a polymer as found in the instant application having secondary pendent groups, as well as, ion exchange functional groups as taught in the prior art for crosslinking. The motivation would have been a reasonable expectation of obtaining an ion exchange membrane with improved mechanical properties, such as found in JP 54/052690. Additionally the examiner deems the general disclosure and teachings found in the combination of 10/712,590 and JP 54-052690 would render the instantly claimed method obvious to an artisan of ordinary skill in the art.

This provisional rejection might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the copending application was derived from the inventor of this application and is thus not the invention "by another," or by a showing of a date of invention for the instant application prior to the effective U.S. filing date of the copending application under 37 CFR 1.131. For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

12. Claims 1-6, 8-13, 15-18, 21-32, 34-39, 41-44 and 47-52 are provisionally rejected under 35 U.S.C. 103(a) as being obvious over copending Application No. 10/733,211 in view of Asawa et al (JP 54-052690) which has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the copending application, it would constitute prior art under 35 U.S.C. 102(e) if published or patented. This provisional rejection under 35 U.S.C. 103(a) is based upon a presumption of future publication or patenting of the conflicting application. Copending application 10/733,211 teaches methods of making crosslinked polymers comprising the steps as outlined in claim 1. The polymer described in step (a) appears to read on the instant step (a) polymer when Cl is chosen. Said polymer being crosslinked by exposure to ultraviolet. While the instantly claimed invention does not positively exclude second pendent groups selected from the groups found in claim 1 of 10/733,211, similar polymers having pendent ion exchange functional groups with secondary halogen pendent groups are known in the prior art, such as JP 54-052690 to Asawa et al. Asawa et



Art Unit: 1711

al teaches fluorine-containing cation exchange membranes with improves mechanical properties by crosslinking a copolymer of an iodine-containing vinyl ether, a fluorinated olefin and a fluorine containing monomer having an ion exchange groups or functional groups convertible to ion exchange groups. Said polymer is similar to those taught in the instant application. Therefore, it would have been obvious for a skilled artisan to obtain/prepare a polymer as found in the instant application having secondary pendent groups, as well as, ion exchange functional groups as taught in the prior art for crosslinking. The motivation would have been a reasonable expectation of obtaining an ion exchange membrane with improved mechanical properties, such as found in JP 54/052690. Additionally the examiner deems the general disclosure and teachings found in the combination of 10/733,211 and JP 54-052690 would render the instantly claimed method obvious to an artisan of ordinary skill in the art.

13.

This provisional rejection might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the copending application was derived from the inventor of this application and is thus not the invention "by another," or by a showing of a date of invention for the instant application prior to the effective U.S. filing date of the copending application under 37 CFR 1.131. For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

#### ***Allowable Subject Matter***

14. Claims 14, 19-20, 40 and 45-46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to expressly disclose and/or fairly suggest the instantly claimed method step and/or products resulting from crosslinking said claimed polymers.

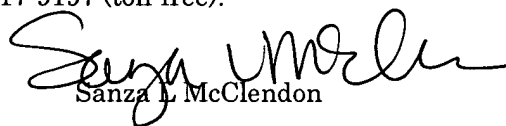
#### ***Conclusion***

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sanza L. McClendon whose telephone number is (571) 272-1074. The examiner can normally be reached on Monday through Friday 7:30-4:00.

Art Unit: 1711

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sanza L. McClendon

Examiner

Art Unit 1711

SMc